

DAVID HORVATH

Software Engineer | Applied AI / ML | End-to-End Product Development

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nexsonum.com | linkedin.com/in/nexsonum | github.com/Nexsonum | hirspektrum.hu



PROFILE

Software engineer with 5 years of professional experience building software, 4+ of them building AI-powered products end to end — from training and deploying computer vision models and LLM/RAG systems to designing the distributed backends, device integrations, and frontends that turn them into shipped products. Currently the sole engineer at a bio-3D-printing startup, owning the full software stack and release process for a hardware product. Comfortable operating with high autonomy, making architecture decisions, and working directly with stakeholders; previously served a year as Scrum Master alongside development work.

WORK EXPERIENCE

Full Stack Engineer (Sole Software Engineer) | Biomotion Technologies 02/2026 – Present

- Own the **entire software stack** of a shipping hardware product: React/TypeScript frontend, C# backend, and containerized Python services for computer vision and G-code slicing.
- Designed and manage the on-printer compute architecture across **Duet3D controllers, Raspberry Pi, and NVIDIA Jetson**, including inter-device communication and hardware control from the application layer.
- Built the **offline update and release system** for printers deployed without internet access, plus the project's full CI/CD pipeline — from zero to a repeatable, versioned release process.
- Act as the technical counterpart to the founders: translate product and biology requirements into architecture decisions, roadmaps, and trade-offs.

Data Specialist (AI / Data Engineering) | Swiss Re 09/2025 – 02/2026

- Engineered large-scale data processing and **entity extraction pipelines in Palantir Foundry** for financial data, with a focus on robustness and throughput.
- Designed and built **LLM-powered internal tools for investment analysis**, including agent-based systems for complex financial use cases.

Software Developer | Verizon 04/2022 – 08/2025

- Trained and fine-tuned **custom computer vision models (YOLO, PyTorch)** and integrated them into a scalable, real-time video processing pipeline on AWS for a smart security system with anomaly detection and user alerting.
- Developed AWS data ingestion and processing pipelines for **IoT telemetry and dashcam imagery**, applying CV models for real-time driver safety analytics.
- Designed and built a full-stack, **AI chatbot using Retrieval-Augmented Generation** as one of the team's first production LLM projects.
- Delivered **embedded computer vision applications (Python/C++)** and smart-home device integrations, bridging cloud pipelines with on-device inference.
- Served one year as **Scrum Master** in parallel with development work, running ceremonies and coordinating delivery across the team.

Project Management Office (PMO) 2021 – 2022

- Built **internal automation tools in Python and Google Apps Script** for worker management and reporting, alongside project coordination — the entry point into full-time software engineering.

SELECTED PROJECT — HIRSPEKTRUM.HU

Founder & Developer | Self-hosted Hungarian media analysis platform 2025 – Present

- Designed the full architecture of a production system: **RabbitMQ, MongoDB, PostgreSQL, Neo4j, caching layers**, and independent Python services, all self-hosted.
- Built a web scraping and ingestion pipeline aggregating the Hungarian news feed, with **dynamic unsupervised clustering** of articles to surface and compare coverage across outlets.
- Implemented **graph analysis in Neo4j and LLM-based analysis pipelines** to generate complex, automated media-literacy insights and combat misinformation.

SKILLS

AI / ML:	PyTorch, TensorFlow, YOLO & custom CV model training, LLMs, RAG, agent systems, NLP, NumPy, Pandas
Programming:	Python (primary), TypeScript/React/NextJS, C#, C/C++ (working), SQL, Bash, FastAPI, Pytest
Architecture:	Distributed systems, event-driven design (RabbitMQ), concurrent & parallel programming, REST APIs, big data pipelines
Data & Infra:	AWS, Palantir Foundry, Docker, Kubernetes, CI/CD, MongoDB, PostgreSQL, Neo4j, Git, Linux
Devices:	NVIDIA Jetson, Raspberry Pi, Duet3D, IoT & smart-home integrations, offline fleet updates

ACHIEVEMENTS

- **Bosch Thesis Project Award (07/2024)** — 1st prize for the MSc thesis “Automated Pollen Detection with Synthetic Data Generation”, combining object detection with synthetic training data.

EDUCATION

MSc Computer Science Engineer University of Pécs	07/2024 • Grade: A
• Specialization: Parallel Computing and Machine Learning	
BSc Mechatronics Engineer Óbuda University	01/2021 • Grade: A
• Specialization: Complex Systems	

LANGUAGES

English (professional) · Hungarian (native)